Cancer wating times in cancer care of key cancers

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Background: Timely diagnosis and initiation of treatment are critical to effective cancer care. Delays in the cancer care pathway can lead to disease progression, reduced survival rates, increased psychological distress for patients, and higher healthcare costs. Reducing cancer waiting times has been a key health-policy focus of the English National Health Service and in many OECD countries. Recognizing these challenges, the National Health Service (NHS) in England has established specific cancer waiting time standards, and urgent cancer referral pathways, to ensure prompt assessment and management of suspected cancer cases. However, recent analysis indicates that performance against these standards has not met targets. One explanation could be increasing referral rates to urgent pathways due to the long waiting times in non-cancer pathways for a given indication. Understanding how waiting times for both cancer and non-cancer pathways influence referral to those treatment pathways is essential for improving care quality and resource planning.

Aims and research questions or objectives: This study seeks to investigate the relationship between waiting times and referral rates for pathways for lung, bowel, prostate, and breast cancer, and their related non-cancer pathways, over the period 2018 to 2024. The objectives are 1) describe cancer waiting times at each stage of the pathway for lung, bowel, prostate, and breast cancer with reference to current standards, 2) describe the positive predictive value of GP referral to a cancer pathway and 3) estimate the associations between waiting times for first specialist review for non-cancer pathways in the speciality, cancer waiting time to first specialist review, and the positive predictive value of referral.

Methods: We will conduct descriptive analyses of cancer waiting times by calculating time intervals between referral, diagnosis, and treatment for lung, bowel, prostate, and breast cancer. The positive predictive value of GP referrals will be calculated as the proportion of urgent suspected cancer referrals resulting in a cancer diagnosis and visualised by cancer type and patient characteristics. We will use a multivariate time series model to analyse the relationships between non-cancer waiting times, cancer pathway waiting times, and the positive predictive value of referrals.

Results: Results will be available upon completion of the proposed analysis.

Conclusions: The findings will support to improve cancer pathway performance and inform service planning within the NHS.

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Background

1)Timely diagnosis and initiation of treatment are critical to effective cancer care. Delays in the cancer care pathway can lead to disease progression, reduced survival rates, increased psychological distress for patients, and higher healthcare costs. Reducing cancer waiting times has been a key health-policy focus of the English National Health Service and in many OECD countries[1]. Recognizing these challenges, the National Health Service (NHS) in England has established specific cancer waiting time standards to ensure prompt assessment and management of suspected cancer cases. Despite these targets, recent analysis indicates that performance against these standards has been behind the targets. Understanding how waiting time influences diagnosis and treatment pathways is essential for improving cancer care quality and resource planning.

2) NHS cancer waiting times standard and targets[2, 3]:

- The 28-day Faster Diagnosis Standard (FDS) (75%)
- One headline 62-day referral to treatment standard (85%)
- One headline 31-day decision to treat to treatment standard (96%)

3) How these standards have been behind the targets:

In February 2025, only 67.0% of patients in England received their diagnosis and started treatment within 62 days of an urgent referral, falling short of the 85% target, 91.8% of people started treatment within 31 days of doctors deciding a treatment plan, falling short of 96% target[4].

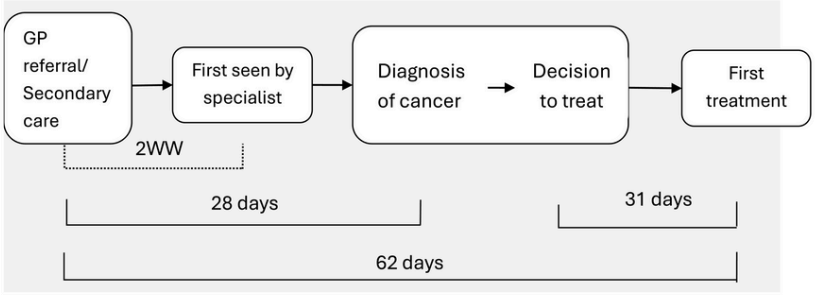

Figure 1 Cancer waiting times standard applied to overall cancer care stages

Method

Inclusion criteria for four common cancers:

lung, bowel (colorectal), prostate and breast

- The four most common causes by cancer mortality (45% of all cancer deaths in males and females) [5]
- The four most common cases by cancer incidence, (53% of all new cases in the UK (2017-2019))[6].

Variables

- Cancer types;
- Cancer Waiting times
- Diagnosis outcomes
- Treatment outcomes
- Demographic characteristics

Data sources

University Hospital Birmingham PATHWAY.

From 2018 to 2024.

Aims & Objectives

This study seeks to better understand the patterns in cancer waiting times and the effectiveness of general practitioner (GP) referrals to cancer pathways to help reduce diagnostic backlogs and support the delivery of more timely and accurate cancer diagnoses within the cancer care pathway.

The specific objectives

1.To describe cancer waiting times at each stage of the pathway for four common cancers with reference to current standards:

2.To describe the cancer waiting time to first specialist review of four cancers in non-cancer pathway and cancer pathway.

3.To describe the positive predictive value(PPV) of GP/secondary care referral of four cancers in non-cancer pathway and cancer pathway.

4.To estimate the associations between waiting times to first specialist review for non-cancer pathways, cancer waiting time to first specialist review for cancer pathways, and the positive predictive value of referral.

5.Sub-objective: investigate the proportion of cancer referrals that come from primary care compared with secondary care for each cancer type, and how these proportions have changed over time.

Analysis

- Retrospective study design.
- Descriptive statistical methods will be used to summarise cancer waiting times across the diagnostic and treatment pathway.
- Visualization of the temporal changes of positive predictive value of GP referrals.
- Subgroup analyses by age, sex, or deprivation may be conducted to explore variation across patient groups.
- Multivariate regression time series model (e.g. the vector autoregression (VAR) model)will be employed to analyse the relationships between non-cancer waiting times, cancer pathway waiting times, and the positive predictive value of referrals.

The Patient and Public Involvement and Engagement (PPIE) plan will actively involve patients, carers, and the public in shaping study design, interpretation, and dissemination to ensure relevance and impact.

Reference

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